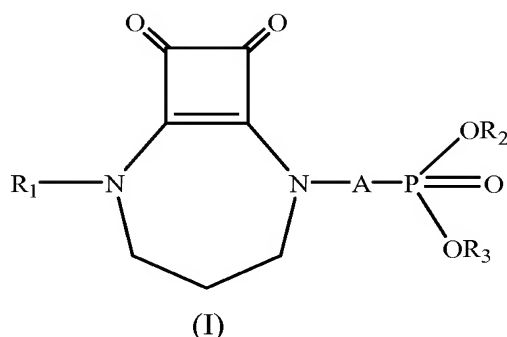


This listing of claims will replace all prior versions, and listings, of claims in the application.

***Listing of Claims:***

1. ***(currently amended)*** A compound of formula (I) or a pharmaceutically acceptable salt thereof:

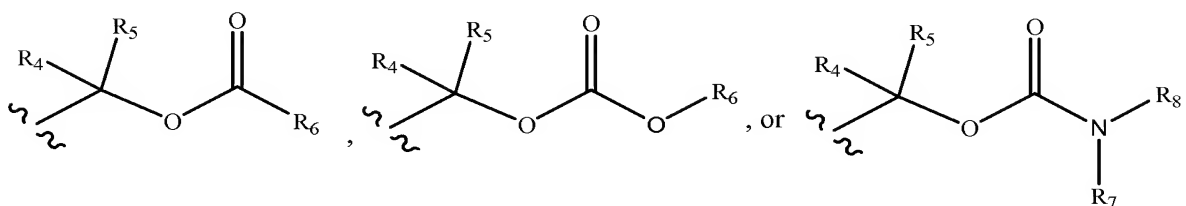


wherein:

R<sub>1</sub> is hydrogen, a C<sub>1</sub> to C<sub>6</sub> alkyl group, a C<sub>2</sub> to C<sub>7</sub> acyl group, a C<sub>1</sub> to C<sub>6</sub> alkanesulfonyl group, or a C<sub>6</sub> to C<sub>14</sub> aroyl group;

A is alkylene of 1 to 4 carbon atoms or alkenylene of 2 to 4 carbon atoms;

R<sub>2</sub> and R<sub>3</sub> are independently selected from hydrogen, or



with the proviso that at least one of R<sub>2</sub> and R<sub>3</sub> is not hydrogen;

R<sub>4</sub> and R<sub>5</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>4</sub> alkyl group, a C<sub>5</sub> to C<sub>7</sub> aryl group, a C<sub>6</sub> to C<sub>15</sub> alkylaryl group having 5 to 7 carbon atoms in the aryl ring, a C<sub>2</sub> to C<sub>7</sub> alkenyl group, or C<sub>2</sub> to C<sub>7</sub> alkynyl group, or R<sub>4</sub> and R<sub>5</sub> may together form a spiro C<sub>3</sub> to C<sub>8</sub> carbocyclic ring;

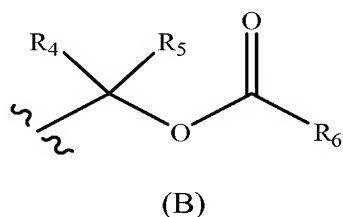
R<sub>6</sub> is a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a ~~C<sub>6</sub> to C<sub>21</sub>~~ C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety; a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl

moiety, a C<sub>4</sub> to C<sub>8</sub> cycloalkyl group, a C<sub>5</sub> to C<sub>16</sub> alkylcycloalkyl group having 4 to 8 carbon atoms in the cycloalkyl ring;

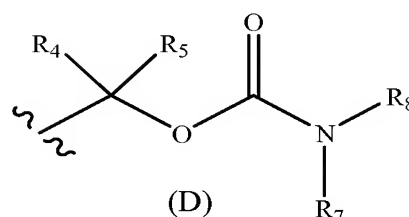
R<sub>7</sub> and R<sub>8</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety, a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, or R<sub>7</sub> and R<sub>8</sub> may together form a cycloalkyl or heterocycloalkyl group having in the ring 4 to 8 carbon atoms and optionally one to two atoms selected from nitrogen, oxygen or sulfur;

wherein any R<sub>1</sub> to R<sub>8</sub> group having an aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety may optionally be substituted on the aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety with 1 to about 5 substituents independently selected from a halogen atom, a cyano, nitro or hydroxyl group, a C<sub>1</sub>-C<sub>6</sub> alkyl group, or a C<sub>1</sub>-C<sub>6</sub> alkoxy group.

2. *(original)* The compound of claim 1 wherein R<sub>1</sub> is H or a C<sub>1</sub> to C<sub>4</sub> alkyl group.
3. *(original)* The compound of claim 2 wherein A is an alkylene group having the formula -  
-(CH<sub>2</sub>)<sub>n</sub>-, where n is 1 to 3.
4. *(original)* The compound of claim 3 wherein n is 2.
5. *(original)* The compound of claim 4 wherein R<sub>4</sub> and R<sub>5</sub> are independently selected from H or a C<sub>1</sub> to C<sub>4</sub> alkyl group, and R<sub>6</sub> is selected from a C<sub>3</sub> to C<sub>10</sub> linear or branched alkyl group, a C<sub>5</sub> to C<sub>7</sub> aryl group, a 5- to 7-membered heteroaryl group, or a cycloalkyl group having in the ring 5 to 7 carbon atoms.
6. *(original)* The compound of claim 5 wherein R<sub>2</sub> and R<sub>3</sub> are independently selected from H or the moiety:



or



with the proviso that at least one of R<sub>2</sub> and R<sub>3</sub> is not H.

7. *(original)* The compound of claim 6 wherein R<sub>2</sub> and R<sub>3</sub> are independently selected from H or the moiety (B).

8. *(original)* The compound of claim 7 wherein R<sub>6</sub> is a C<sub>5</sub> to C<sub>7</sub> aryl group.

9. *(currently amended)* The compound of claim 1 wherein at least one compound of formula (I) is selected from:

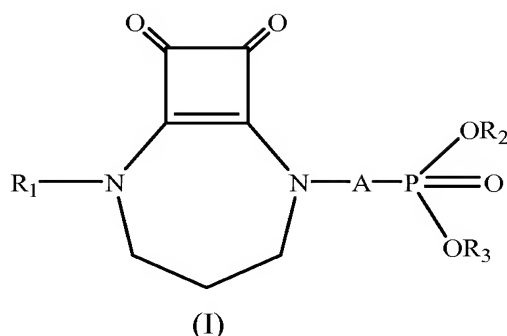
- a) 3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-7-phenyl-2,4,6-trioxa-3-phosphahept-1-yl benzoate;
- b) 3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-8-propyl-2,4,6-trioxa-3-phosphaundec-1-yl-2-propylpentanoate;
- c) 2,2-dimethyl-propionic acid {(2,2-dimethyl-propionyloxymethoxy)-[2-(8,9-dioxo-2,6-diaza-bicyclo[5.2.0]-non-1(7)-en-2-yl)-ethyl]-phosphinoyloxy} methyl ester;
- d) 7-cyclohexyl-3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-1,5-dimethyl-3-oxido-7-oxo-2,4,6-trioxa-3-phosphahept-1-yl cyclohexanecarboxylate;
- e) ~~7-cyclohexyl-3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-2,4,6-trioxa-3-phosphahept-1-yl cyclohexanecarboxylate;~~  
7-cyclohexyl-3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-2,4,6-trioxa-3-phosphahept-1-yl cyclohexanecarboxylate;

- f) [2-(8,9-Dioxo-2,6-diaza-bicyclo[5.2.0]non-1-(7)-en-2-yl)-ethyl]-phosphonic acid diisopropoxycarbonyl oxymethyl ester;
- g) [2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl]-phosphonic acid bis[1-(benzoyloxy)ethyl] ester;
- h) benzoic acid [2-(8,9-dioxo-2,6-diaza-bicyclo[5.2.0]non-1(7)-en-2-yl)-ethyl]-hydroxy-phosphinoyloxymethyl ester; or
- i) [2-(8,9-Dioxo-2,6-diaza-bicyclo[5.2.0]non-1(7)-en-2-yl)-ethyl]-phosphonic acid di-dimethylcarbamoyloxymethyl ester; or  
a pharmaceutically acceptable salt thereof.

10. **(original)** The compound of claim 1 wherein the compound of formula (I) is selected from

- a) 3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1 (7)-en-2-yl]ethyl}-3-oxido-7-oxo-7-phenyl-2,4,6-trioxa-3-phosphahept-1-yl benzoate;
- b) [2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1 (7)-en-2-yl]ethyl]-phosphonic acid bis[1-(benzoyloxy)ethyl]ester; or
- c) benzoic acid [2-(8,9-dioxo-2,6-diaza-bicyclo[5.2.0]non-1 (7)-en-2-yl)-ethyl]-hydroxy-phosphinoyloxymethyl ester; or  
a pharmaceutically acceptable salt thereof.

11. **(currently amended)** A method for treating at least one condition in a mammal selected from a cerebral vascular disorder selected from cerebral ischemia, cerebral infarction or cerebral vasospasm; cerebral trauma; muscular spasm; a convulsive disorder selected from epilepsy or status epilepticus; glaucoma; diabetic ~~end~~ and organ complications; hypoglycemia; cardiac arrest; asphyxia anoxia; or spinal chord injury comprising administering to a mammal a therapeutically effective amount of at least one compound of formula (I) or a pharmaceutically acceptable salt thereof:

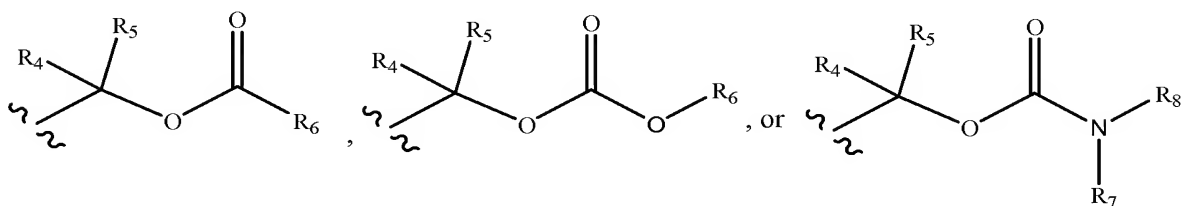


wherein:

R<sub>1</sub> is hydrogen, a C<sub>1</sub> to C<sub>6</sub> alkyl group, a C<sub>2</sub> to C<sub>7</sub> acyl group, a C<sub>1</sub> to C<sub>6</sub> alkanesulfonyl group, or a C<sub>6</sub> to C<sub>14</sub> aroyl group;

A is alkylene of 1 to 4 carbon atoms or alkenylene of 2 to 4 carbon atoms;

R<sub>2</sub> and R<sub>3</sub> are independently selected from hydrogen, or



with the proviso that at least one of R<sub>2</sub> and R<sub>3</sub> is not hydrogen;

R<sub>4</sub> and R<sub>5</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>4</sub> alkyl group, a C<sub>5</sub> to C<sub>7</sub> aryl group, a C<sub>6</sub> to C<sub>15</sub> alkylaryl group having 5 to 7 carbon atoms in the aryl ring, a C<sub>2</sub> to C<sub>7</sub> alkenyl group, or C<sub>2</sub> to C<sub>7</sub> alkynyl group, or R<sub>4</sub> and R<sub>5</sub> may together form a spiro C<sub>3</sub> to C<sub>8</sub> carbocyclic ring;

R<sub>6</sub> is a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a ~~C<sub>6</sub> to C<sub>21</sub>~~ C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety; a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, a C<sub>4</sub> to C<sub>8</sub> cycloalkyl group, a C<sub>5</sub> to C<sub>16</sub> alkylcycloalkyl group having 4 to 8 carbon atoms in the cycloalkyl ring;

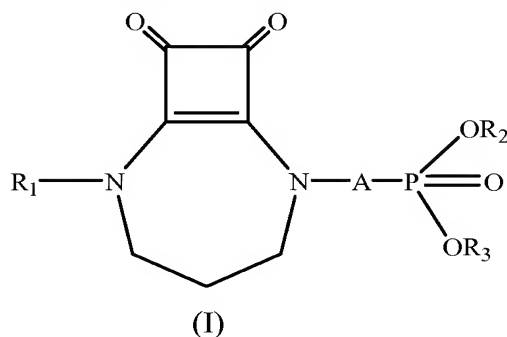
R<sub>7</sub> and R<sub>8</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety, a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl

group having 5 to 13 members in the heteroaryl moiety, or R<sub>7</sub> and R<sub>8</sub> may together form a cycloalkyl or heterocycloalkyl group having in the ring 4 to 8 carbon atoms and optionally one to two atoms selected from nitrogen, oxygen or sulfur;

wherein any R<sub>1</sub> to R<sub>8</sub> group having an aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety may optionally be substituted on the aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety with 1 to about 5 substituents independently selected from a halogen atom, a cyano, nitro or hydroxyl group, a C<sub>1</sub>-C<sub>6</sub> alkyl group, or a C<sub>1</sub>-C<sub>6</sub> alkoxy group.

12. *(original)* The method of claim 11 wherein the mammal is human.

13. *(currently amended)* A method for treating at least one condition in a mammal selected from anxiety disorders; mood disorders; schizophrenia; schizophreniform disorder; schizoaffective disorder; or cognitive impairment comprising administering to a mammal a therapeutically effective amount of at least one compound of formula (I) or a pharmaceutically acceptable salt thereof:

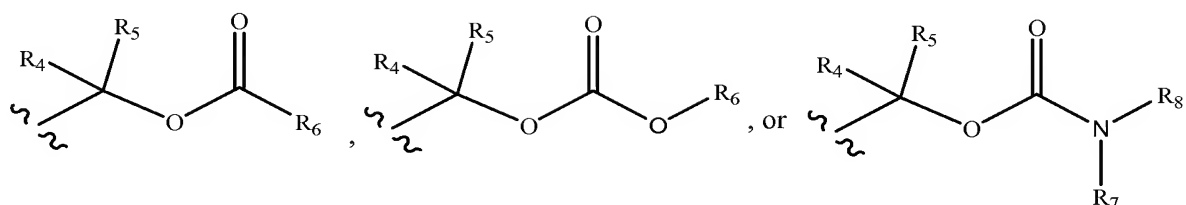


wherein:

R<sub>1</sub> is hydrogen, a C<sub>1</sub> to C<sub>6</sub> alkyl group, a C<sub>2</sub> to C<sub>7</sub> acyl group, a C<sub>1</sub> to C<sub>6</sub> alkanesulfonyl group, or a C<sub>6</sub> to C<sub>14</sub> aroyl group;

A is alkylene of 1 to 4 carbon atoms or alkenylene of 2 to 4 carbon atoms;

R<sub>2</sub> and R<sub>3</sub> are independently selected from hydrogen, or



with the proviso that at least one of R<sub>2</sub> and R<sub>3</sub> is not hydrogen;

R<sub>4</sub> and R<sub>5</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>4</sub> alkyl group, a C<sub>5</sub> to C<sub>7</sub> aryl group, a C<sub>6</sub> to C<sub>15</sub> alkylaryl group having 5 to 7 carbon atoms in the aryl ring, a C<sub>2</sub> to C<sub>7</sub> alkenyl group, or C<sub>2</sub> to C<sub>7</sub> alkynyl group, or R<sub>4</sub> and R<sub>5</sub> may together form a spiro C<sub>3</sub> to C<sub>8</sub> carbocyclic ring;

R<sub>6</sub> is a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a ~~C<sub>6</sub> to C<sub>21</sub>~~ C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety; a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, a C<sub>4</sub> to C<sub>8</sub> cycloalkyl group, a C<sub>5</sub> to C<sub>16</sub> alkylcycloalkyl group having 4 to 8 carbon atoms in the cycloalkyl ring;

R<sub>7</sub> and R<sub>8</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety, a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, or R<sub>7</sub> and R<sub>8</sub> may together form a cycloalkyl or heterocycloalkyl group having in the ring 4 to 8 carbon atoms and optionally one to two atoms selected from nitrogen, oxygen or sulfur;

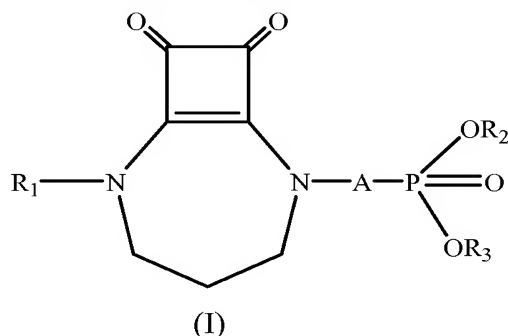
wherein any R<sub>1</sub> to R<sub>8</sub> group having an aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety may optionally be substituted on the aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety with 1 to about 5 substituents independently selected from a halogen atom, a cyano, nitro or hydroxyl group, a C<sub>1</sub>-C<sub>6</sub> alkyl group, or a C<sub>1</sub>-C<sub>6</sub> alkoxy group

14. *(original)* The method of claim 13 wherein the anxiety disorder is selected from panic attack, agoraphobia, panic disorder, specific phobia, social phobia, obsessive compulsive disorder, posttraumatic stress disorder, acute stress disorder, generalized

anxiety disorder, separation anxiety disorder, or substance-induced anxiety disorder; or the mood disorder is selected from bipolar disorders, depressive disorders selected from major depressive disorder, dysthymic disorder, or substance-induced mood disorder, or mood episodes selected from major depressive episode, manic episode, mixed episode, or hypomanic episode.

15. *(original)* The method of claim 13 wherein the mammal is human.

16. *(currently amended)* A method for treating at least one chronic neurodegenerative disorder in a mammal selected from Parkinson's disease, Huntingdon's disease, Alzheimer's disease, amyotrophic lateral sclerosis, or chronic dementia comprising administering to a mammal a therapeutically effective amount of at least one compound of formula (I) or a pharmaceutically acceptable salt thereof:

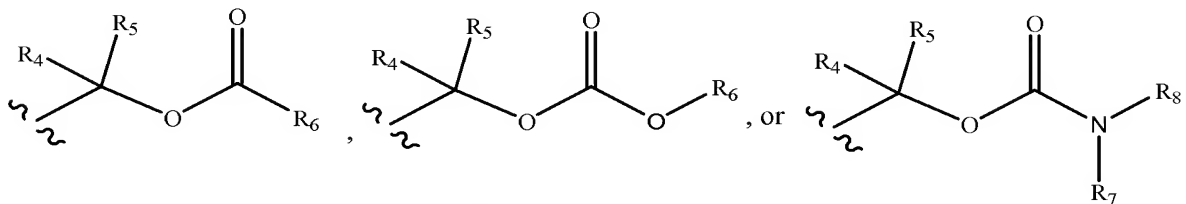


wherein:

R<sub>1</sub> is hydrogen, a C<sub>1</sub> to C<sub>6</sub> alkyl group, a C<sub>2</sub> to C<sub>7</sub> acyl group, a C<sub>1</sub> to C<sub>6</sub> alkanesulfonyl group, or a C<sub>6</sub> to C<sub>14</sub> aroyl group;

A is alkylene of 1 to 4 carbon atoms or alkenylene of 2 to 4 carbon atoms;

R<sub>2</sub> and R<sub>3</sub> are independently selected from hydrogen, or



with the proviso that at least one of R<sub>2</sub> and R<sub>3</sub> is not hydrogen;



R<sub>4</sub> and R<sub>5</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>4</sub> alkyl group, a C<sub>5</sub> to C<sub>7</sub> aryl group, a C<sub>6</sub> to C<sub>15</sub> alkylaryl group having 5 to 7 carbon atoms in the aryl ring, a C<sub>2</sub> to C<sub>7</sub> alkenyl group, or C<sub>2</sub> to C<sub>7</sub> alkynyl group, or R<sub>4</sub> and R<sub>5</sub> may together form a spiro C<sub>3</sub> to C<sub>8</sub> carbocyclic ring;

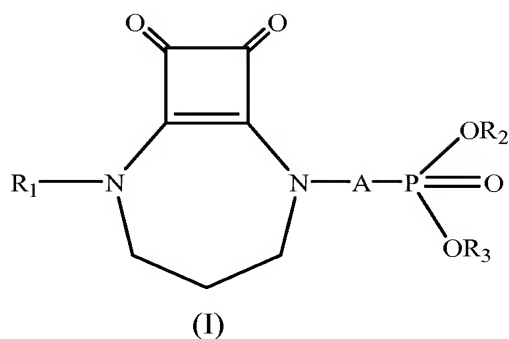
R<sub>6</sub> is a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a ~~C<sub>6</sub> to C<sub>21</sub>~~ C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety; a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, a C<sub>4</sub> to C<sub>8</sub> cycloalkyl group, a C<sub>5</sub> to C<sub>16</sub> alkylcycloalkyl group having 4 to 8 carbon atoms in the cycloalkyl ring;

R<sub>7</sub> and R<sub>8</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety, a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, or R<sub>7</sub> and R<sub>8</sub> may together form a cycloalkyl or heterocycloalkyl group having in the ring 4 to 8 carbon atoms and optionally one to two atoms selected from nitrogen, oxygen or sulfur;

wherein any R<sub>1</sub> to R<sub>8</sub> group having an aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety may optionally be substituted on the aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety with 1 to about 5 substituents independently selected from a halogen atom, a cyano, nitro or hydroxyl group, a C<sub>1</sub>-C<sub>6</sub> alkyl group, or a C<sub>1</sub>-C<sub>6</sub> alkoxy group.

17. *(original)* The method of claim 16 wherein the mammal is a human.

18. *(currently amended)* A method for treating at least one condition in a mammal selected from inflammatory diseases; fibromyalgia; complications from herpes zoster; prevention of tolerance to opiate analgesia; or withdrawal symptoms from addictive drugs comprising administering to a mammal a therapeutically effective amount of at least one compound of formula (I) or a pharmaceutically acceptable salt thereof:

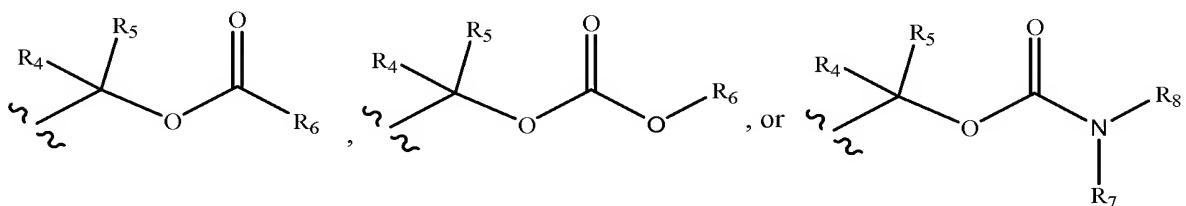


wherein:

R<sub>1</sub> is hydrogen, a C<sub>1</sub> to C<sub>6</sub> alkyl group, a C<sub>2</sub> to C<sub>7</sub> acyl group, a C<sub>1</sub> to C<sub>6</sub> alkanesulfonyl group, or a C<sub>6</sub> to C<sub>14</sub> aroyl group;

A is alkylene of 1 to 4 carbon atoms or alkenylene of 2 to 4 carbon atoms;

R<sub>2</sub> and R<sub>3</sub> are independently selected from hydrogen, or



with the proviso that at least one of R<sub>2</sub> and R<sub>3</sub> is not hydrogen;

R<sub>4</sub> and R<sub>5</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>4</sub> alkyl group, a C<sub>5</sub> to C<sub>7</sub> aryl group, a C<sub>6</sub> to C<sub>15</sub> alkylaryl group having 5 to 7 carbon atoms in the aryl ring, a C<sub>2</sub> to C<sub>7</sub> alkenyl group, or C<sub>2</sub> to C<sub>7</sub> alkynyl group, or R<sub>4</sub> and R<sub>5</sub> may together form a spiro C<sub>3</sub> to C<sub>8</sub> carbocyclic ring;

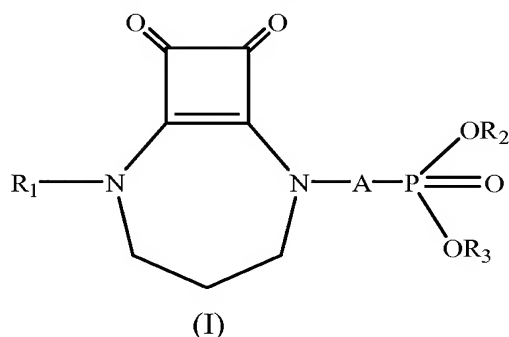
R<sub>6</sub> is a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a ~~C<sub>6</sub> to C<sub>21</sub>~~ C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety; a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, a C<sub>4</sub> to C<sub>8</sub> cycloalkyl group, a C<sub>5</sub> to C<sub>16</sub> alkylcycloalkyl group having 4 to 8 carbon atoms in the cycloalkyl ring;

R<sub>7</sub> and R<sub>8</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety, a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl

group having 5 to 13 members in the heteroaryl moiety, or R<sub>7</sub> and R<sub>8</sub> may together form a cycloalkyl or heterocycloalkyl group having in the ring 4 to 8 carbon atoms and optionally one to two atoms selected from nitrogen, oxygen or sulfur;

wherein any R<sub>1</sub> to R<sub>8</sub> group having an aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety may optionally be substituted on the aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety with 1 to about 5 substituents independently selected from a halogen atom, a cyano, nitro or hydroxyl group, a C<sub>1</sub>-C<sub>6</sub> alkyl group, or a C<sub>1</sub>-C<sub>6</sub> alkoxy group.

19. *(currently amended)* A method for treating pain in a mammal comprising administering to a mammal a therapeutically effective amount of at least one compound of formula (I) or a pharmaceutically acceptable salt thereof:

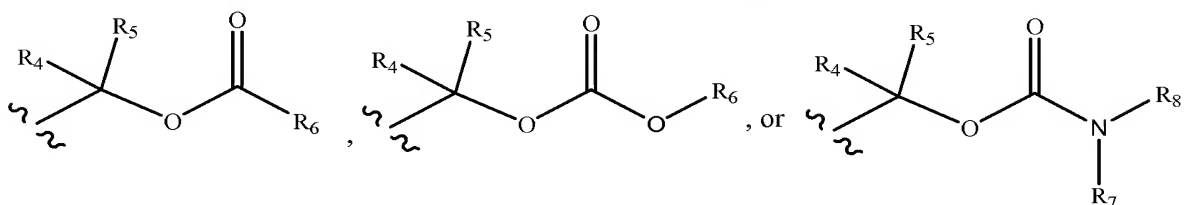


wherein:

R<sub>1</sub> is hydrogen, a C<sub>1</sub> to C<sub>6</sub> alkyl group, a C<sub>2</sub> to C<sub>7</sub> acyl group, a C<sub>1</sub> to C<sub>6</sub> alkanesulfonyl group, or a C<sub>6</sub> to C<sub>14</sub> aroyl group;

A is alkylene of 1 to 4 carbon atoms or alkenylene of 2 to 4 carbon atoms;

R<sub>2</sub> and R<sub>3</sub> are independently selected from hydrogen, or



with the proviso that at least one of R<sub>2</sub> and R<sub>3</sub> is not hydrogen;

R<sub>4</sub> and R<sub>5</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>4</sub> alkyl group, a C<sub>5</sub> to C<sub>7</sub> aryl group, a C<sub>6</sub> to C<sub>15</sub> alkylaryl group having 5 to 7 carbon atoms in the aryl

ring, a C<sub>2</sub> to C<sub>7</sub> alkenyl group, or C<sub>2</sub> to C<sub>7</sub> alkynyl group, or R<sub>4</sub> and R<sub>5</sub> may together form a spiro C<sub>3</sub> to C<sub>8</sub> carbocyclic ring;

R<sub>6</sub> is a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a ~~C<sub>6</sub> to C<sub>21</sub>~~ C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety; a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, a C<sub>4</sub> to C<sub>8</sub> cycloalkyl group, a C<sub>5</sub> to C<sub>16</sub> alkylcycloalkyl group having 4 to 8 carbon atoms in the cycloalkyl ring;

R<sub>7</sub> and R<sub>8</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety, a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, or R<sub>7</sub> and R<sub>8</sub> may together form a cycloalkyl or heterocycloalkyl group having in the ring 4 to 8 carbon atoms and optionally one to two atoms selected from nitrogen, oxygen or sulfur;

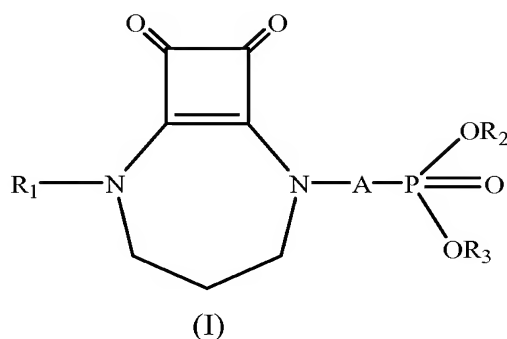
wherein any R<sub>1</sub> to R<sub>8</sub> group having an aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety may optionally be substituted on the aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety with 1 to about 5 substituents independently selected from a halogen atom, a cyano, nitro or hydroxyl group, a C<sub>1</sub>-C<sub>6</sub> alkyl group, or a C<sub>1</sub>-C<sub>6</sub> alkoxy group.

20. *(original)* The method of claim 19 wherein the pain is selected from at least one of neuropathic pain; cancer pain; visceral pain associated with pancreatitis or abdominal, pelvic or perineal regions; musculoskeletal pain associated with lower or upper back, spine, fibromyalgia, temporomandibular joint, or myofascial pain syndrome; bony pain associated with bone or joint degenerating disorders; headaches; or pain associated with infections, sickle cell anemia, autoimmune disorders, multiple sclerosis, dental procedures, burns or inflammation.

21. *(original)* The method of claim 20 wherein the pain comprises neuropathic pain and is associated with at least one of diabetic neuropathy, peripheral neuropathy, post-

herpetic neuralgia, trigeminal neuralgia, lumbar or cervical radiculopathies, fibromyalgia, glossopharyngeal neuralgia, reflex sympathetic dystrophy, casualgia, thalamic syndrome, nerve root avulsion, or nerve damage cause by injury selected from phantom limb pain, reflex sympathetic dystrophy or postthoracotomy pain, cancer, chemical injury, toxins, nutritional deficiencies, or viral or bacterial infections.

22. *(original)* The method of claim 19 wherein the mammal is human.
23. *(original)* The method of claim 19 further comprising administering a therapeutically effective amount of at least one pain relieving agent.
24. *(original)* The method of claim 23 wherein the pain relieving agent comprises an opioid analgesic.
25. *(currently amended)* A pharmaceutical composition comprising:
- a) a therapeutically effective amount of at least one compound of formula (I) or a pharmaceutically acceptable salt thereof:

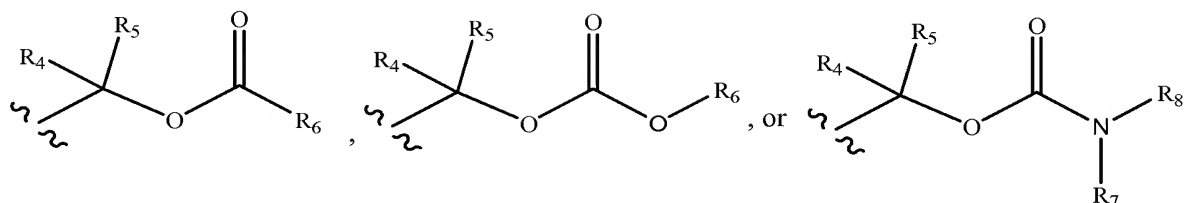


wherein:

R<sub>1</sub> is hydrogen, a C<sub>1</sub> to C<sub>6</sub> alkyl group, a C<sub>2</sub> to C<sub>7</sub> acyl group, a C<sub>1</sub> to C<sub>6</sub> alkanesulfonyl group, or a C<sub>6</sub> to C<sub>14</sub> aroyl group;

A is alkylene of 1 to 4 carbon atoms or alkenylene of 2 to 4 carbon atoms;

R<sub>2</sub> and R<sub>3</sub> are independently selected from hydrogen, or



with the proviso that at least one of R<sub>2</sub> and R<sub>3</sub> is not hydrogen;

R<sub>4</sub> and R<sub>5</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>4</sub> alkyl group, a C<sub>5</sub> to C<sub>7</sub> aryl group, a C<sub>6</sub> to C<sub>15</sub> alkylaryl group having 5 to 7 carbon atoms in the aryl ring, a C<sub>2</sub> to C<sub>7</sub> alkenyl group, or C<sub>2</sub> to C<sub>7</sub> alkynyl group, or R<sub>4</sub> and R<sub>5</sub> may together form a spiro C<sub>3</sub> to C<sub>8</sub> carbocyclic ring;

R<sub>6</sub> is a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a ~~C<sub>6</sub> to C<sub>2</sub>~~ C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety; a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, a C<sub>4</sub> to C<sub>8</sub> cycloalkyl group, a C<sub>5</sub> to C<sub>16</sub> alkylcycloalkyl group having 4 to 8 carbon atoms in the cycloalkyl ring;

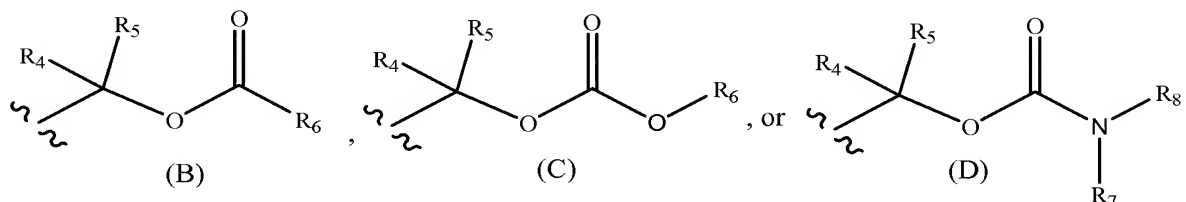
R<sub>7</sub> and R<sub>8</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety, a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, or R<sub>7</sub> and R<sub>8</sub> may together form a cycloalkyl or heterocycloalkyl group having in the ring 4 to 8 carbon atoms and optionally one to two atoms selected from nitrogen, oxygen or sulfur;

wherein any R<sub>1</sub> to R<sub>8</sub> group having an aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety may optionally be substituted on the aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety with 1 to about 5 substituents independently selected from a halogen atom, a cyano, nitro or hydroxyl group, a C<sub>1</sub>-C<sub>6</sub> alkyl group, or a C<sub>1</sub>-C<sub>6</sub> alkoxy group; and

- b) at least one pharmaceutically acceptable carrier.

26. (original) The composition of claim 25 wherein

$R_2$  and  $R_3$  are independently selected from H or:



R<sub>6</sub> is selected from a C<sub>3</sub> to C<sub>10</sub> linear or branched alkyl group, a C<sub>5</sub> to C<sub>7</sub> aryl group, a 5- to 7-membered heteroaryl group, or a cycloalkyl group having in the ring 5 to 7 carbon atoms.

27. **(original)** The composition of claim 26 wherein  
R<sub>2</sub> and R<sub>3</sub> are independently selected from H or the moiety (B) and R<sub>6</sub> is a C<sub>5</sub>  
to C<sub>7</sub> aryl group.
28. **(currently amended)** The composition of claim 25 wherein the compound of formula  
(I) is selected from:
- a) 3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-7-phenyl-2,4,6-trioxa-3-phosphahept-1-yl benzoate;
  - b) 3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-8-propyl-2,4,6-trioxa-3-phosphaundec-1-yl-2-propylpentanoate;
  - c) 2,2-dimethyl-propionic acid {(2,2-dimethyl-propionyloxymethoxy)-[2-(8,9-dioxo-2,6-diaza-bicyclo[5.2.0]-non-1(7)-en-2-yl)-ethyl]-phosphinoyloxy} methyl ester;
  - d) 7-cyclohexyl-3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-1,5-dimethyl-3-oxido-7-oxo-2,4,6-trioxa-3-phosphahept-1-yl cyclohexanecarboxylate;
  - e) ~~7-cyclohexyl-3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-2,4,6-trioxa-3-phosphahept-1-yl~~

~~cyclohexanecarboxylate;~~

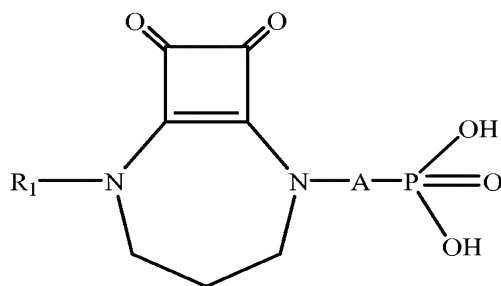
7-cyclohexyl-3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-2,4,6-trioxa-3-phosphahept-1-yl

cyclohexanecarboxylate;

- f) [2-(8,9-Dioxo-2,6-diaza-bicyclo[5.2.0]non-1(7)-en-2-yl)-ethyl]-phosphonic acid diisopropoxycarbonyl oxymethyl ester;
  - g) [2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl]-phosphonic acid bis[1-(benzoyloxy)ethyl] ester;
  - h) benzoic acid [2-(8,9-dioxo-2,6-diaza-bicyclo[5.2.0]non-1(7)-en-2-yl)-ethyl]-hydroxy-phosphinoyloxymethyl ester; or
  - i) [2-(8,9-Dioxo-2,6-diaza-bicyclo[5.2.0]non-1(7)-en-2-yl)-ethyl]-phosphonic acid di-dimethylcarbamoyloxymethyl ester; or
- a pharmaceutically acceptable salt thereof.

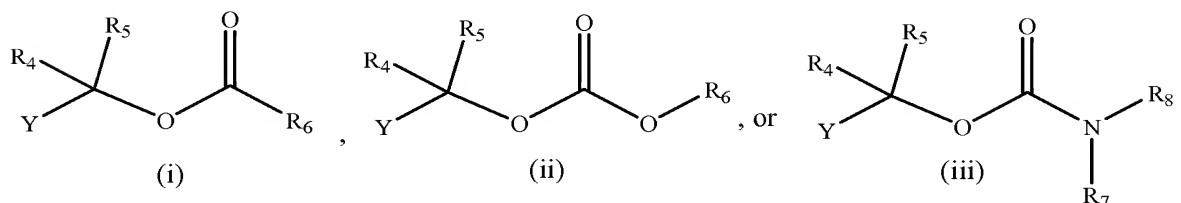
29. *(currently amended)* A product made by the process comprising:

- a) reacting a compound of formula (II)



(II)

and at least one ester selected from



wherein

$R_1$  is hydrogen, a  $C_1$  to  $C_6$  alkyl group, a  $C_2$  to  $C_7$  acyl group, a  $C_1$  to  $C_6$  alkanesulfonyl group, or a  $C_6$  to ~~C14~~ C<sub>14</sub> aryl group;



A is alkylene of 1 to 4 carbon atoms or alkenylene of 2 to 4 carbon atoms;

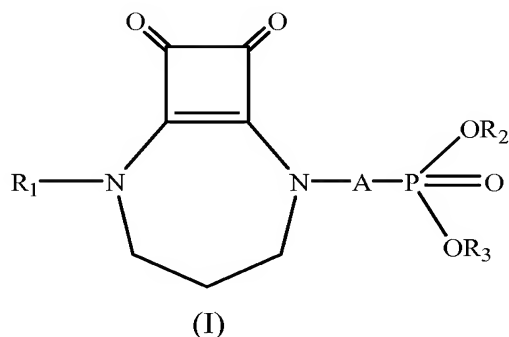
Y is a leaving group;

R<sub>4</sub> and R<sub>5</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>4</sub> alkyl group, a C<sub>5</sub> to C<sub>7</sub> aryl group, a C<sub>6</sub> to C<sub>15</sub> alkylaryl group having 5 to 7 carbon atoms in the aryl ring, a C<sub>2</sub> to C<sub>7</sub> alkenyl group, or C<sub>2</sub> to C<sub>7</sub> alkynyl group, or R<sub>4</sub> and R<sub>5</sub> may together form a spiro C<sub>3</sub> to C<sub>8</sub> carbocyclic ring;

R<sub>6</sub> is a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a ~~C<sub>6</sub> to C<sub>12</sub>~~, C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety; a 5 to 13-membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, a C<sub>4</sub> to C<sub>8</sub> cycloalkyl group, a C<sub>5</sub> to C<sub>16</sub> alkylcycloalkyl group having 4 to 8 carbon atoms in the cycloalkyl ring; and

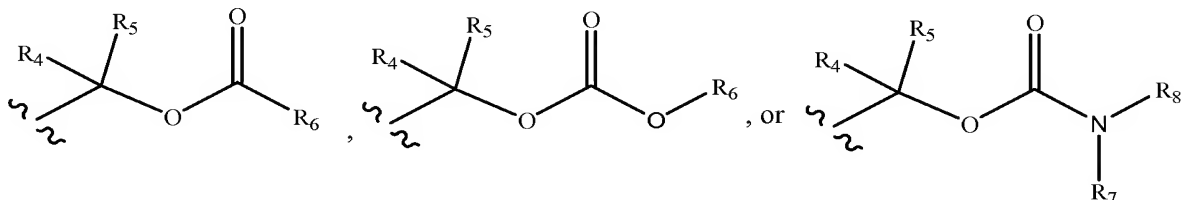
R<sub>7</sub> and R<sub>8</sub> are independently selected from hydrogen, a C<sub>1</sub> to C<sub>12</sub> linear or branched alkyl group, a C<sub>2</sub> to C<sub>7</sub> linear or branched alkenyl or alkynyl group, a C<sub>5</sub> to C<sub>13</sub> aryl group, a ~~C<sub>6</sub> to C<sub>12</sub>~~, C<sub>6</sub> to C<sub>21</sub> alkylaryl group having 5 to 13 carbon atoms in the aryl moiety; a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, or R<sub>7</sub> and R<sub>8</sub> may together form a cycloalkyl or heterocycloalkyl group having in the ring 4 to 8 carbon atoms and optionally one to two atoms selected from nitrogen, oxygen or sulfur; and

- b) forming a product of formula (I) or a pharmaceutically acceptable salt thereof



wherein:

R<sub>2</sub> and R<sub>3</sub> are independently selected from hydrogen, or



with the proviso that at least one of R<sub>2</sub> and R<sub>3</sub> is not hydrogen;

R<sub>1</sub>, A, R<sub>4</sub>, R<sub>5</sub>, and R<sub>6</sub> in formula (I) are defined as in formula (II); wherein any R<sub>1</sub> to R<sub>8</sub> group in formula (I) or (II) having an aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety may optionally be substituted with 1 to about 5 substituents independently selected from a halogen atom, a cyano, nitro or hydroxyl group, a C<sub>1</sub>-C<sub>6</sub> alkyl group, or a C<sub>1</sub>-C<sub>6</sub> alkoxy group.